

## SIPROTEC 7SD511/512 Current Comparison Protection Relay for Overhead Lines and Cables



**Fig. 7/66**  
SIPROTEC 7SD511/512  
current comparison protection relay

### Description

The 7SD511/512 current comparison protection units provide fast and phase-selective short-circuit protection of cables and overhead lines of all voltage levels. The combination of dynamic and steady-state differential measurement makes the current comparison protection sensitive to internal high-resistive faults and extremely stable during short-circuit through fault currents. Neither the treatment of the network neutrals nor the load current has an influence on the short-circuit sensitivity. The digital transmission of protection data normally occurs via fiber optic cables or digital communication equipment.

With the options of the integrated optical interface, the following connections are possible:

- 820 nm: Multi-mode fiber 62.5/125  $\mu\text{m}$  up to 1.5 km. Connection to a remote relay or an optical/RS232 converter to interface to a communication device or an 820/1300 nm repeater.
- 1300 nm: Multi-mode fiber up to 8 km or mono-mode fiber up to 30 km. Direct connection to the remote relay.

The protection includes a thermal overload function and an emergency backup overcurrent function. As a standard feature, the connection to the remote relay is monitored, thus the pilot wire supervision is integrated.

### Function overview

#### Protection functions

- Phase-selective short-circuit protection for cables and overhead lines
- Overload protection with thermal characteristic
- Digital transmission of protection data via fiber optics or serial-based communication networks (RS232 input)
- Circuit-breaker intertripping and remote tripping feature via binary input
- Four remote signals
- Emergency overcurrent-time protection in case of loss of the data transmission
- Integrated single and three-pole auto-reclose function for 7SD512
- Different CT ratios allowed

#### Features

- Measuring of delay-time and automatic correction of delay-time available
- Commissioning aid. Currents and phasors from the remote side

#### Monitoring functions

- Monitoring the protection data transmission; data loss and data interruption alarm
- Operational current measurement of local and remote CT's current
- Self-supervision of the relay
- 30 event logs
- 8 fault logs
- 8 oscillographic fault records

#### Communication interfaces

- System interface
  - IEC 60870-5-103 protocol or DIGSI 3 for remote access

#### Hardware

- Binary inputs: 4/11
- Binary outputs: 2/5 trip relays
- Binary outputs: 5/13 alarm relays

#### Front design

- PC front port for convenient relay setting
- 16 LEDs for local indication
- Numerical front keypad for relay setting

## Selection and ordering data

Description	Order No.
<b>7SD511/512 current comparison protection relay</b>	<b>7SD51□□-□□□□□□-□□□□A0</b>
<i>Auto-reclose function</i>	
Without auto-reclose function (AR)	1
With single and three-pole auto-reclose function (AR)	2
<i>Rated current for 50 / 60 Hz AC</i>	
1 A	1
5 A	5
<i>Rated auxiliary voltage</i>	
24, 48 V DC	2
60, 110, 125 V DC	4
220, 250 V DC	5
<i>Unit version/Language</i>	
Language: German/English (GB), 50 Hz	
For panel surface mounting	B 0
For panel flush mounting or cubicle mounting	C 0
For panel flush mounting or cubicle mounting, without glass cover	E 0
Language: English (US)/German, 60 Hz	
For panel flush mounting /cubicle mounting with top terminals and US-foil for front panel	F 1
With ring cable lug terminals and US-foil for panel front	G 1
<i>With real-time clock, with non-volatile memory, software version V3</i>	2
<i>Interface for protection data transmission to the remote station</i>	
Wired, 2 kV isolated interface, RS 232C	0
Fiber-optic interface, 820 nm wavelength, (maximum distance 1.5 to 2 km)	1
Fiber-optic interface, 1300 nm wavelength, (maximum distance 15 km)	2
<i>System interface/substation control interface</i>	
Without	A
Optical 820 nm wavelength (maximum distance 1.5 to 2 km)	C

## Accessories

## DIGSI 4

Software for configuration and operation of Siemens protection units running under MS Windows (version Windows 95 and higher) device templates, Comtrade Viewer, electronic manual included as well as "Getting started" manual on paper, connecting cable (copper)

## Basis

Full version with license for 10 computers, on CD-ROM (authorization by serial number)

7XS5400-0AA00

Demo version on CD-ROM

7XS5401-0AA00

## Professional

Complete version: DIGSI 4 Basis and additionally SIGRA (fault record analysis), CFC Editor (logic editor), Display Editor (editor for default and control displays) and DIGSI 4 Remote (remote operation)

7XS5402-0AA00

## Connecting cable

Cable between PC (9-pin connector) and protection unit (25-pin connector) 7XV5100-2

or

Cable between PC (9-pin connector) and protection unit (9-pin connector) 7XV5100-4

Adaptor 9-/25-pin for 7XV5100-4 cable for protection unit with 25-pin connector (cable 7XV5100-4 and adaptor contained in DIGSI 4)

7XV5100-8H

*Opto-electrical converter* fiber-optic to asynchronous RS232

7XV5652-0AA00

Opto-optical repeater 820 nm

7XV5451-0AA00

Optical repeater 1300 nm

7XV5452-0AA00

## Manual for 7SD511/512, English

For 7SD511

C53000-G1176-C104-7

For 7SD512

C53000-G1176-C105-4